

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,921,482 B1
APPLICATION NO. : 09/889961
DATED : July 26, 2005
INVENTOR(S) : Cheng et al.

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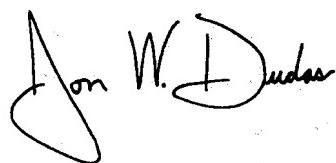
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

THE TITLE PAGE SHOWING ILLUSTRATIVE FIGURE, SHOULD BE DELETED
AND SUBSTITUTE THEREFORE THE ATTACHED TITLE PAGE

**DELETE DRAWING SHEETS 1-11 AND SUBSTITUTE THEREFORE THE
DRAWING SHEETS CONSISTING OF FIGS 1-11 AS SHOWN ON THE
ATTACHED PAGE.**

Signed and Sealed this

Twenty-first Day of August, 2007



JON W. DUDAS
Director of the United States Patent and Trademark Office

(12) United States Patent
Cheng et al.(10) Patent No.: US 6,921,482 B1
(45) Date of Patent: Jul. 26, 2005(54) SKINNED HOLLOW FIBER MEMBRANE
AND METHOD OF MANUFACTURE

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		Martin et al. 210/321.84
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(73) Assignee: Mykrolls Corporation, Billerica, MA
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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/889,961

(22) PCT Filed: Jan. 27, 2000

(86) PCT No.: PCT/US00/02194

§ 371 (c)(1),

(2), (4) Date: Jul. 24, 2001

(87) PCT Pub. No.: WO00/44482

PCT Pub. Date: Aug. 3, 2000

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Primary Examiner—Ana Fortuna

(74) Attorney, Agent, or Firm—Timothy J. King; Paul J. Cook; Mykrolls Corporation

(57) ABSTRACT

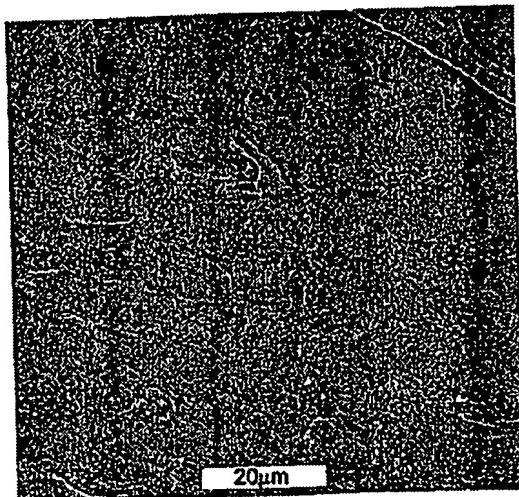
Hollow fiber membranes having a skinned surface on one diameter, and a porous surface on the opposite diameter arm produced from perfluorinated thermoplastic polymers by extruding a heated solution of the polymer having a lower critical solution temperature directly into a cooling bath to form the porous membrane by liquid-liquid phase separation. Extrusion can be conducted either vertically or horizontally. The hollow fiber membranes are useful as ultrafiltration membranes and as membrane contactors.

18 Claims, 11 Drawing Sheets

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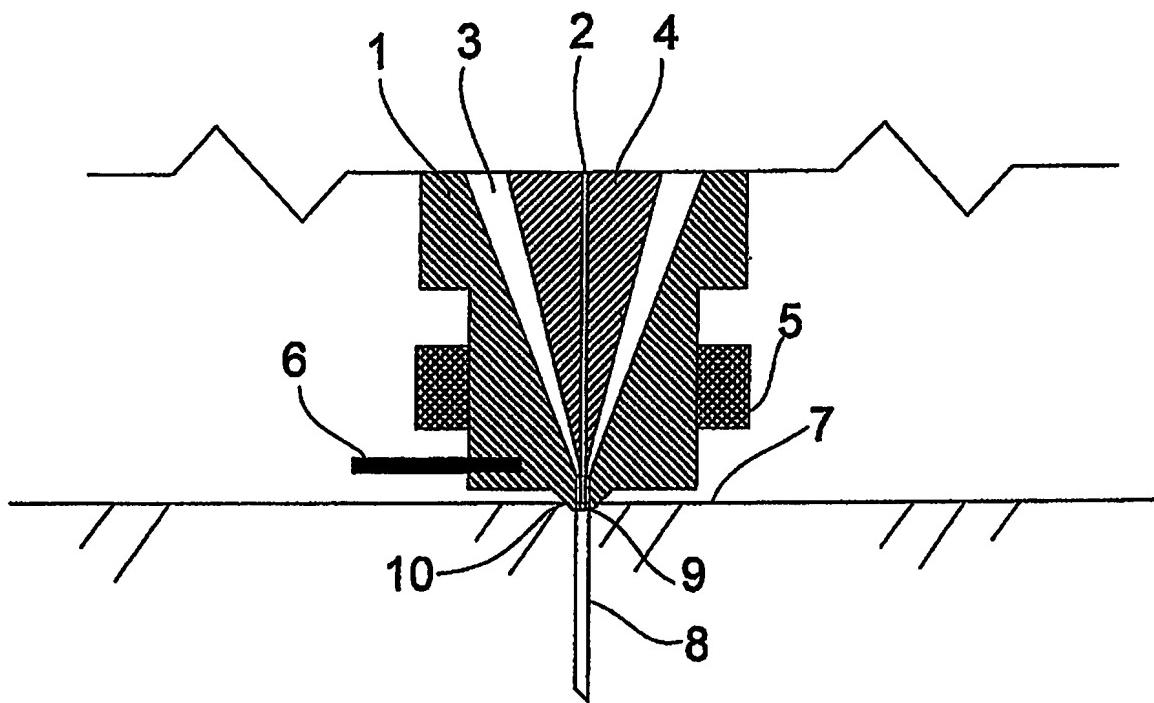
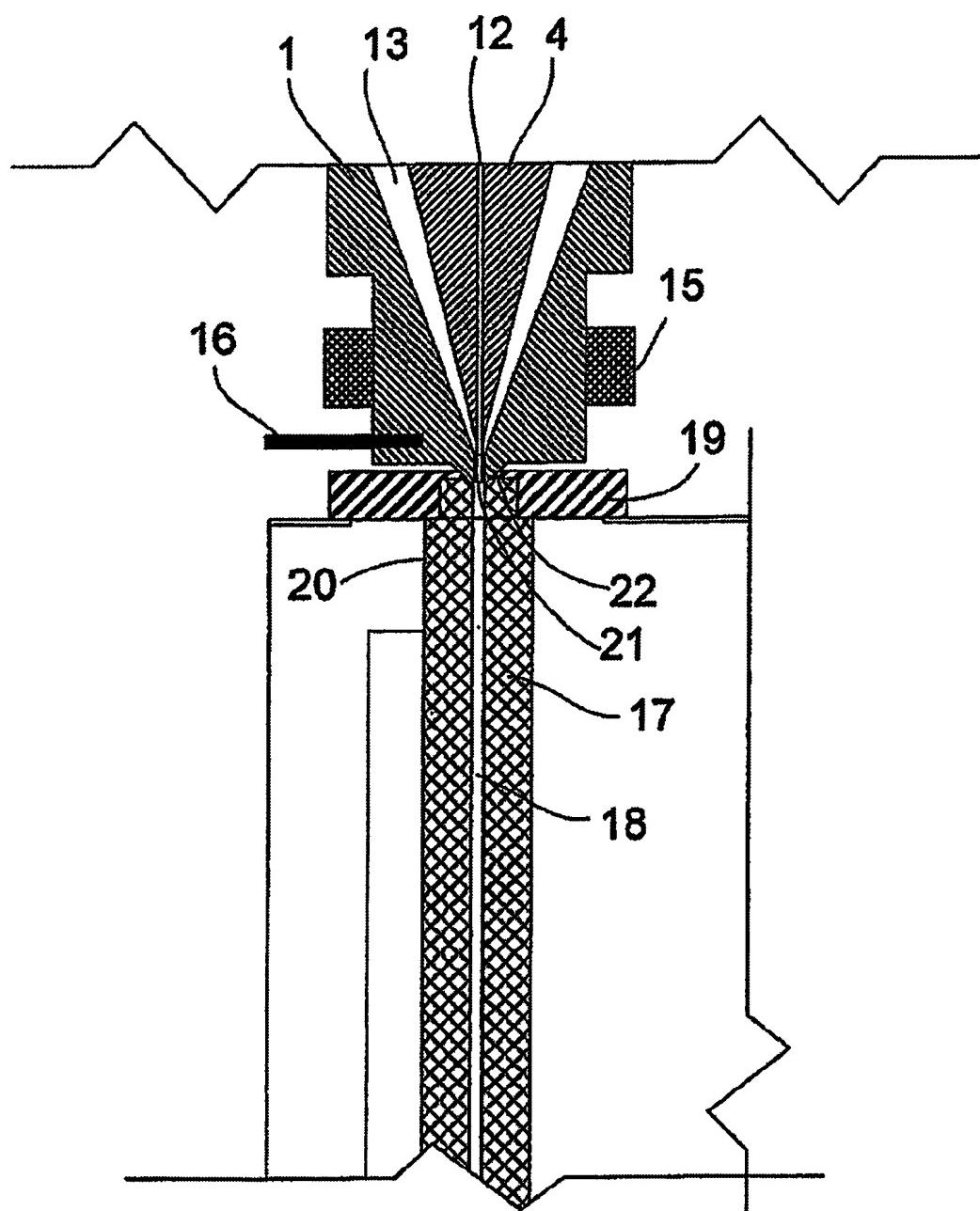


Fig.1

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6,921,482 B1**Fig.2**

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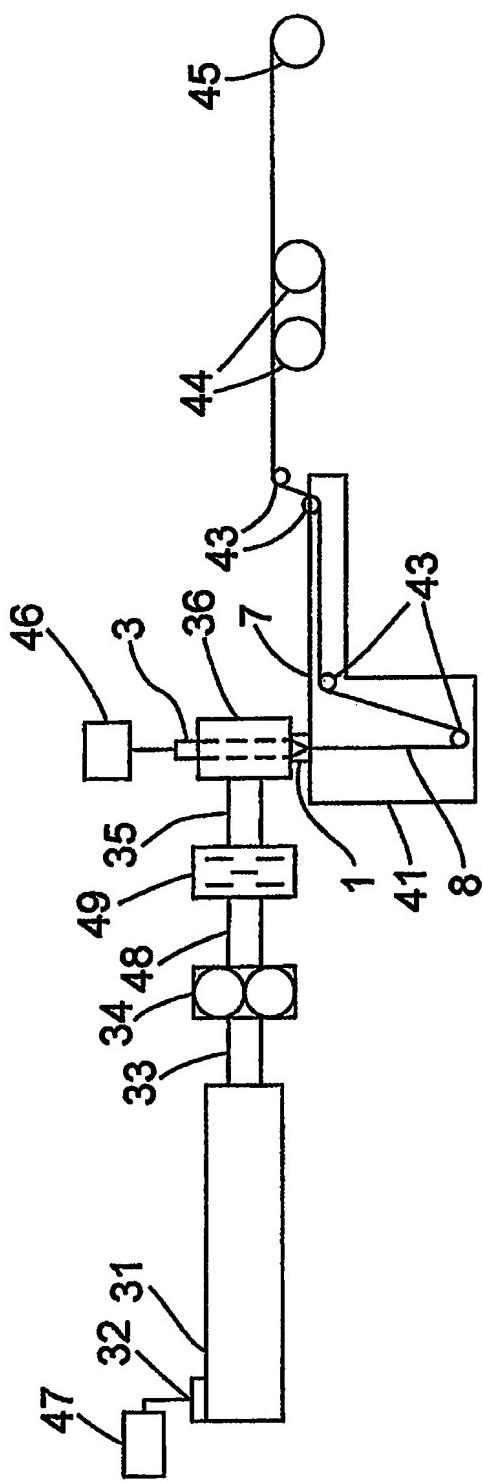


Fig.3

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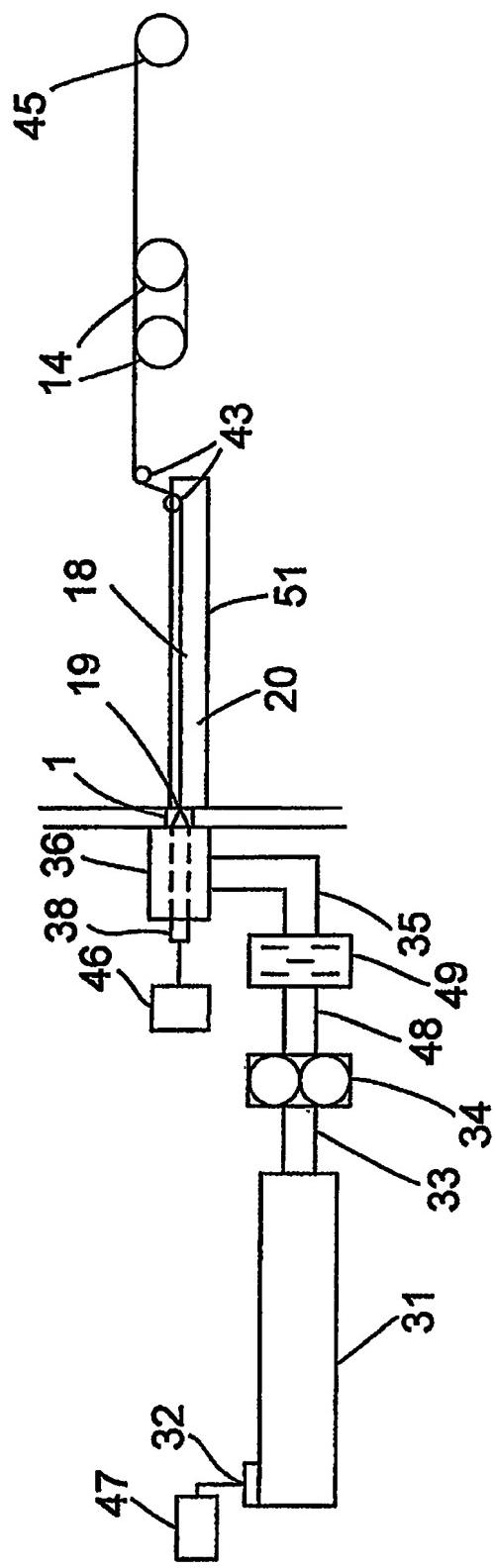


Fig.4

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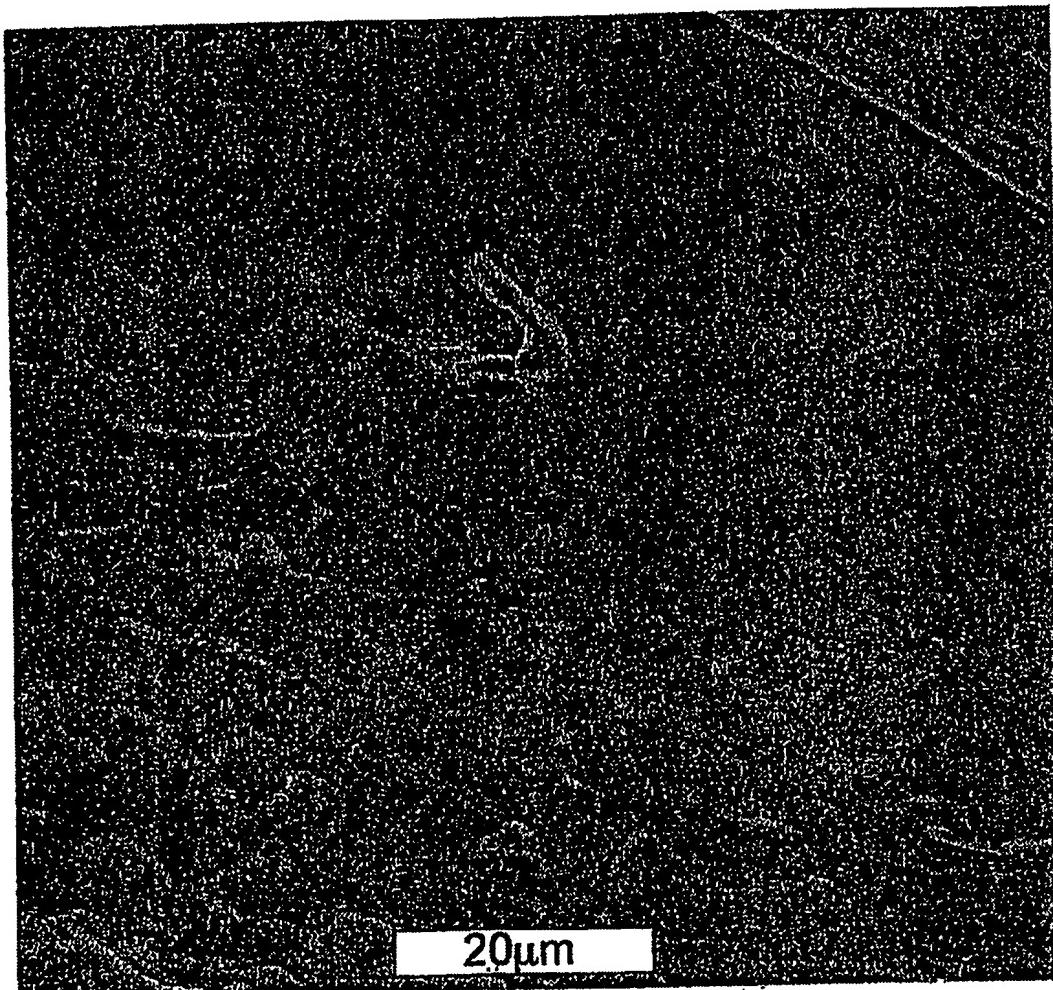


Fig.5

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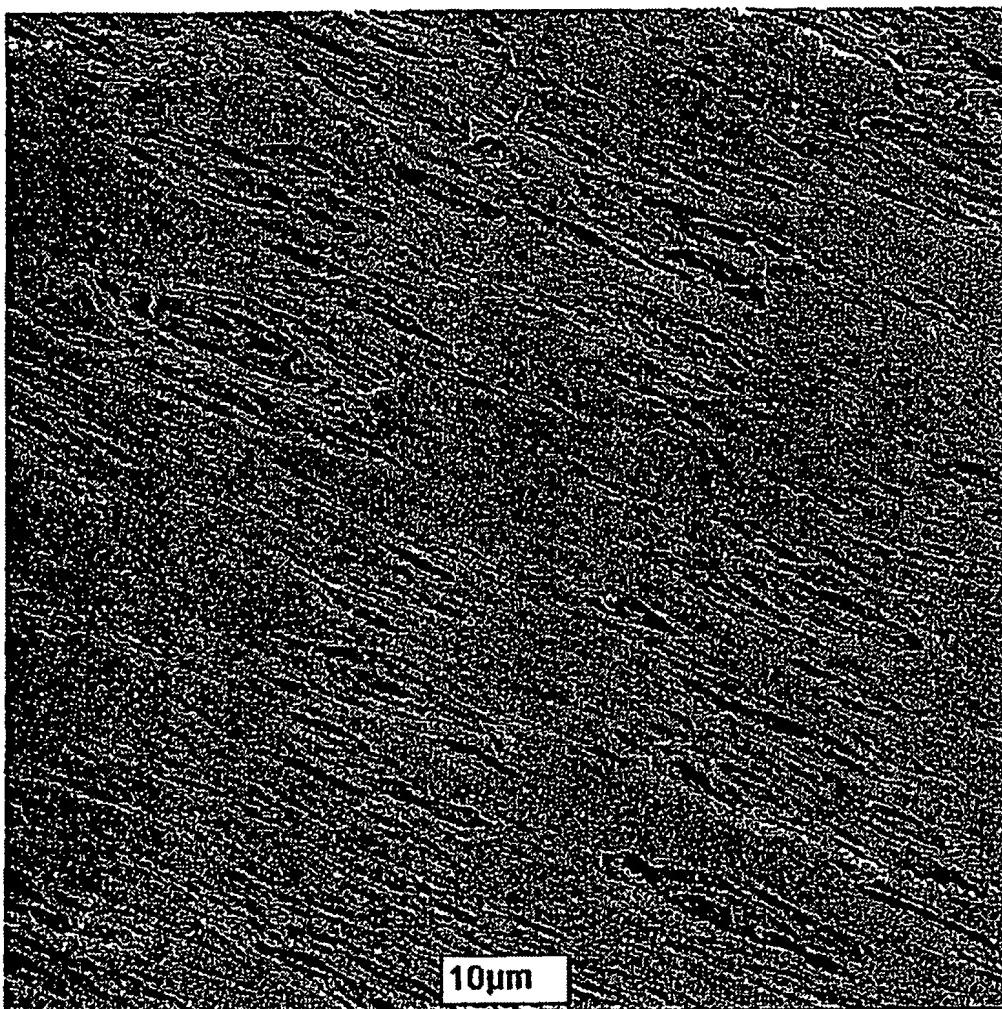


Fig.6

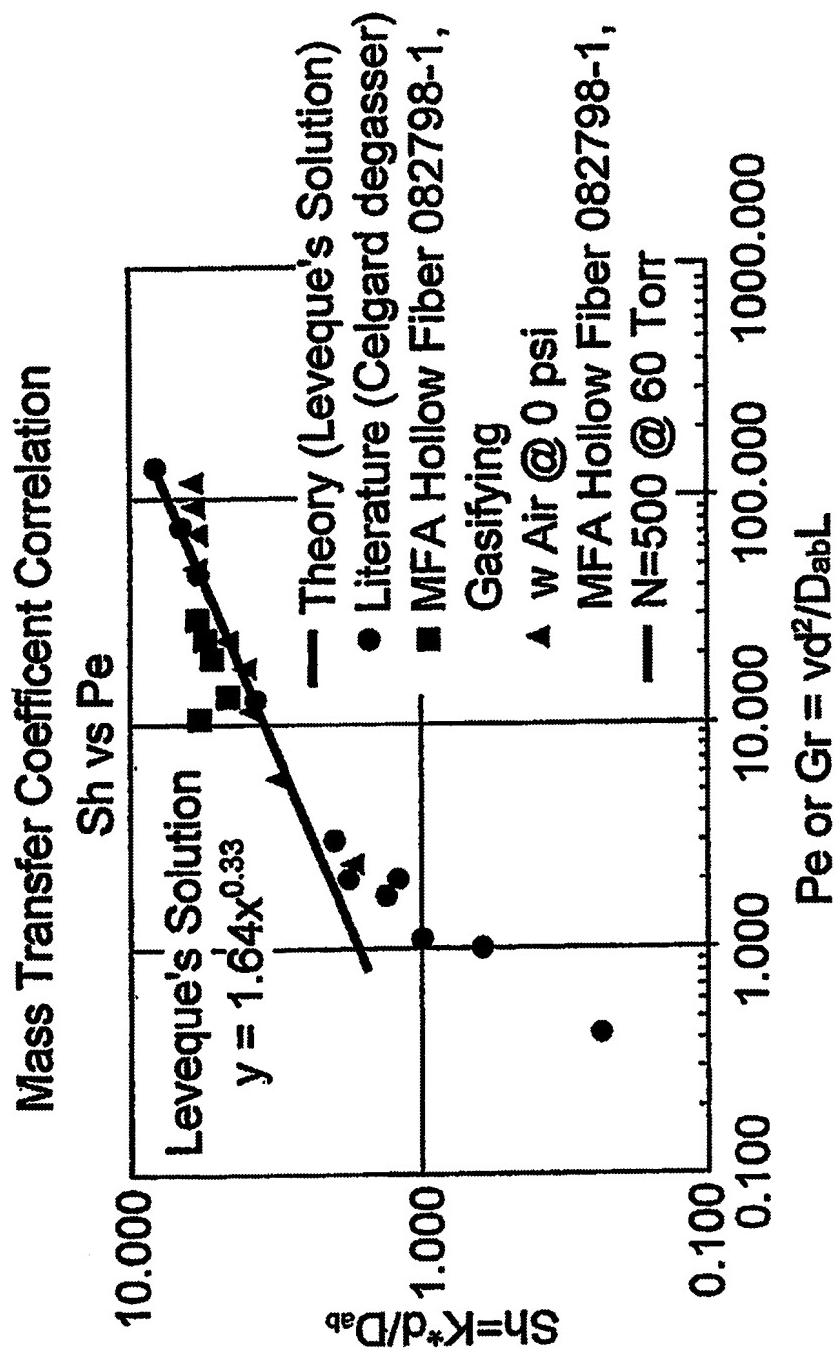


Fig. 7

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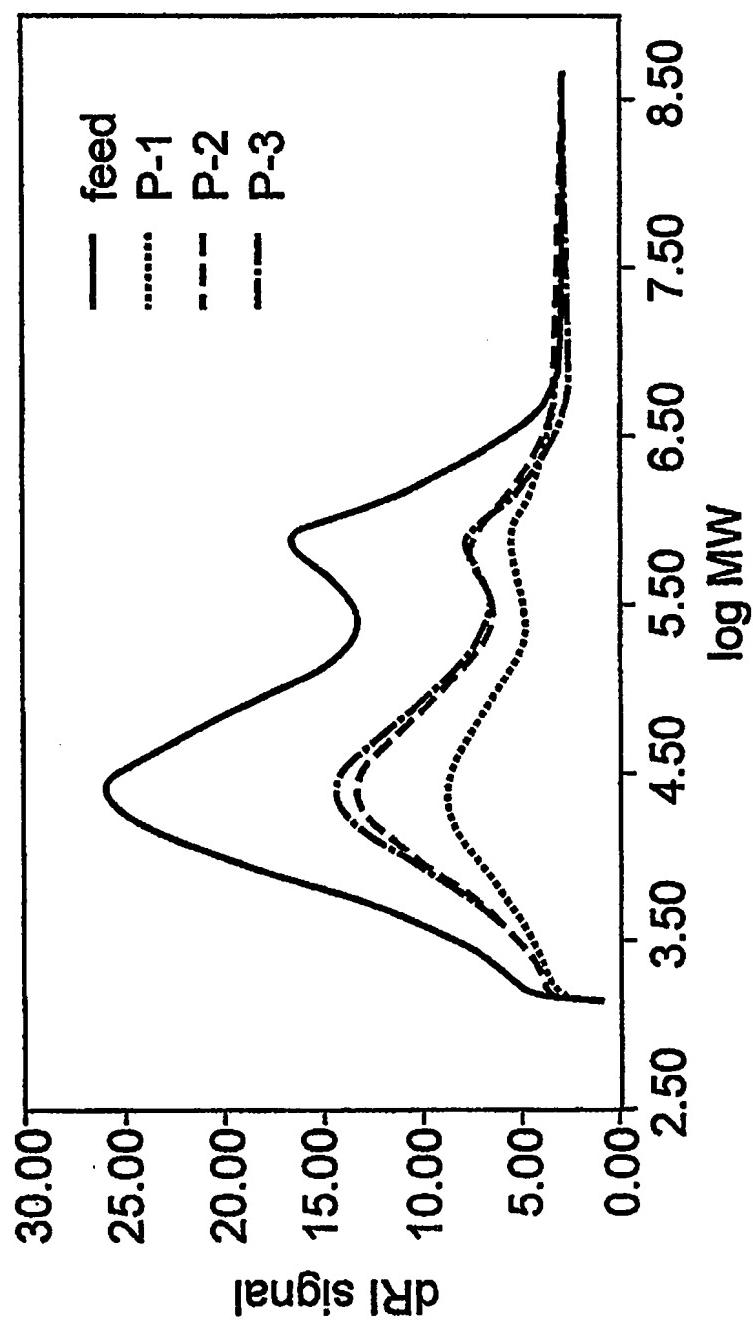


Fig.8

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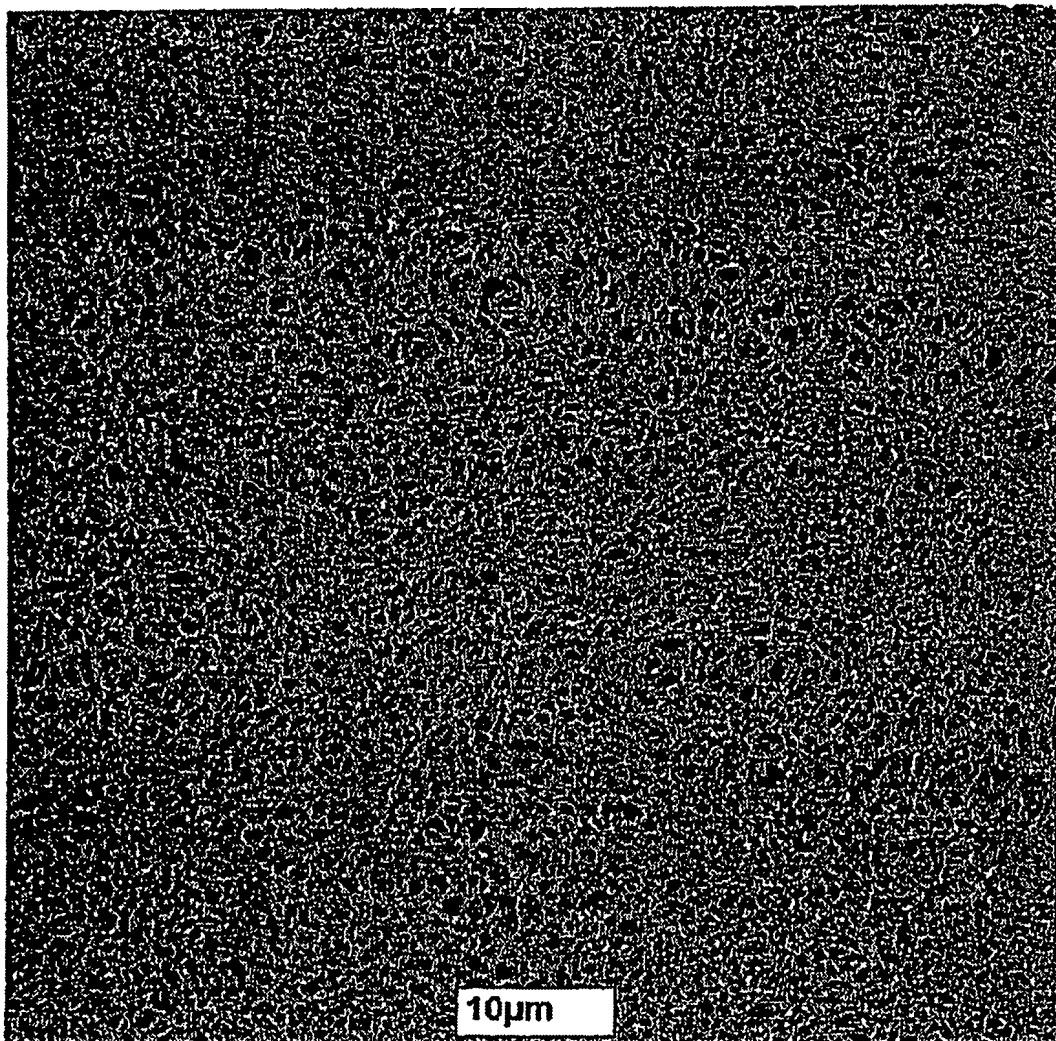


Fig.9

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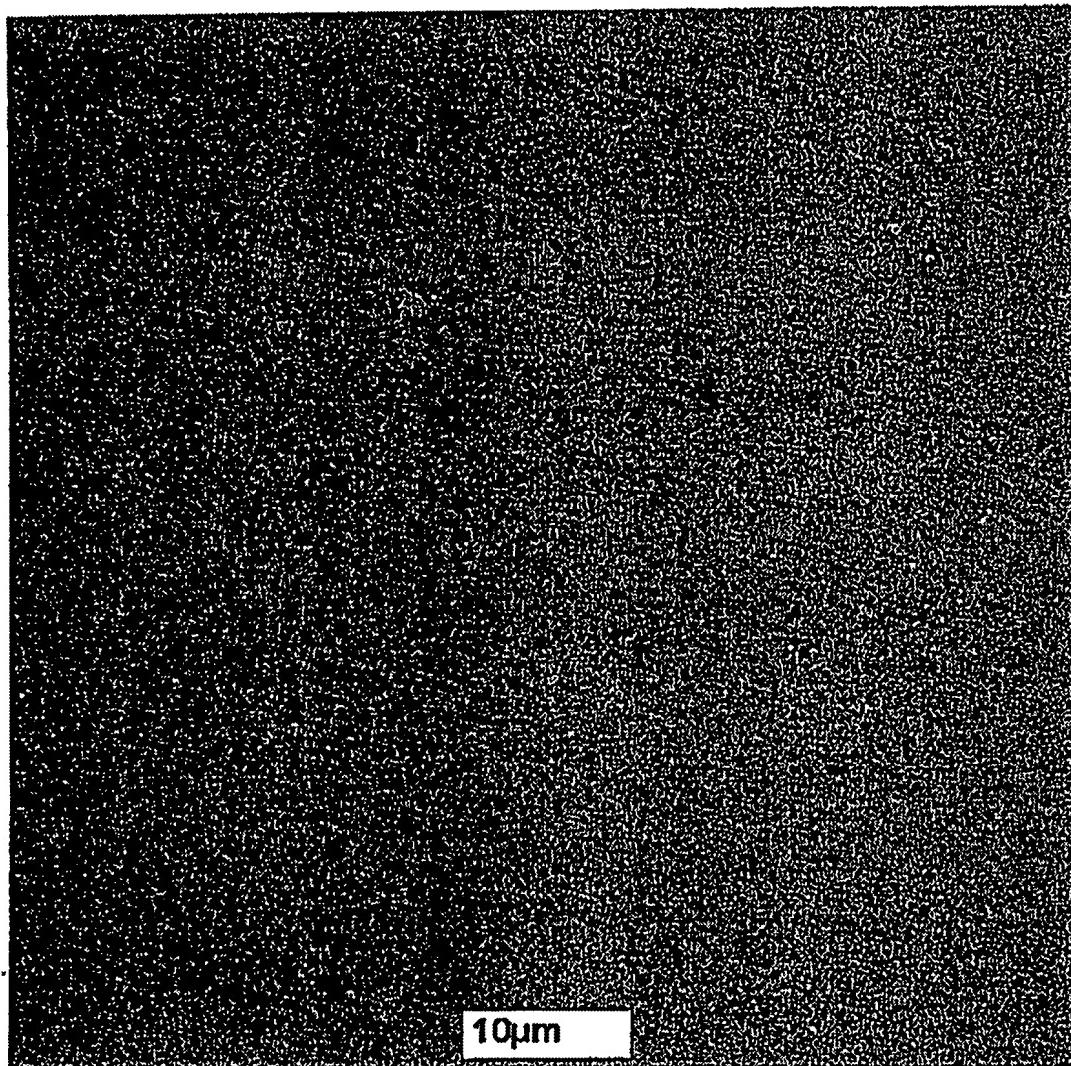


Fig.10

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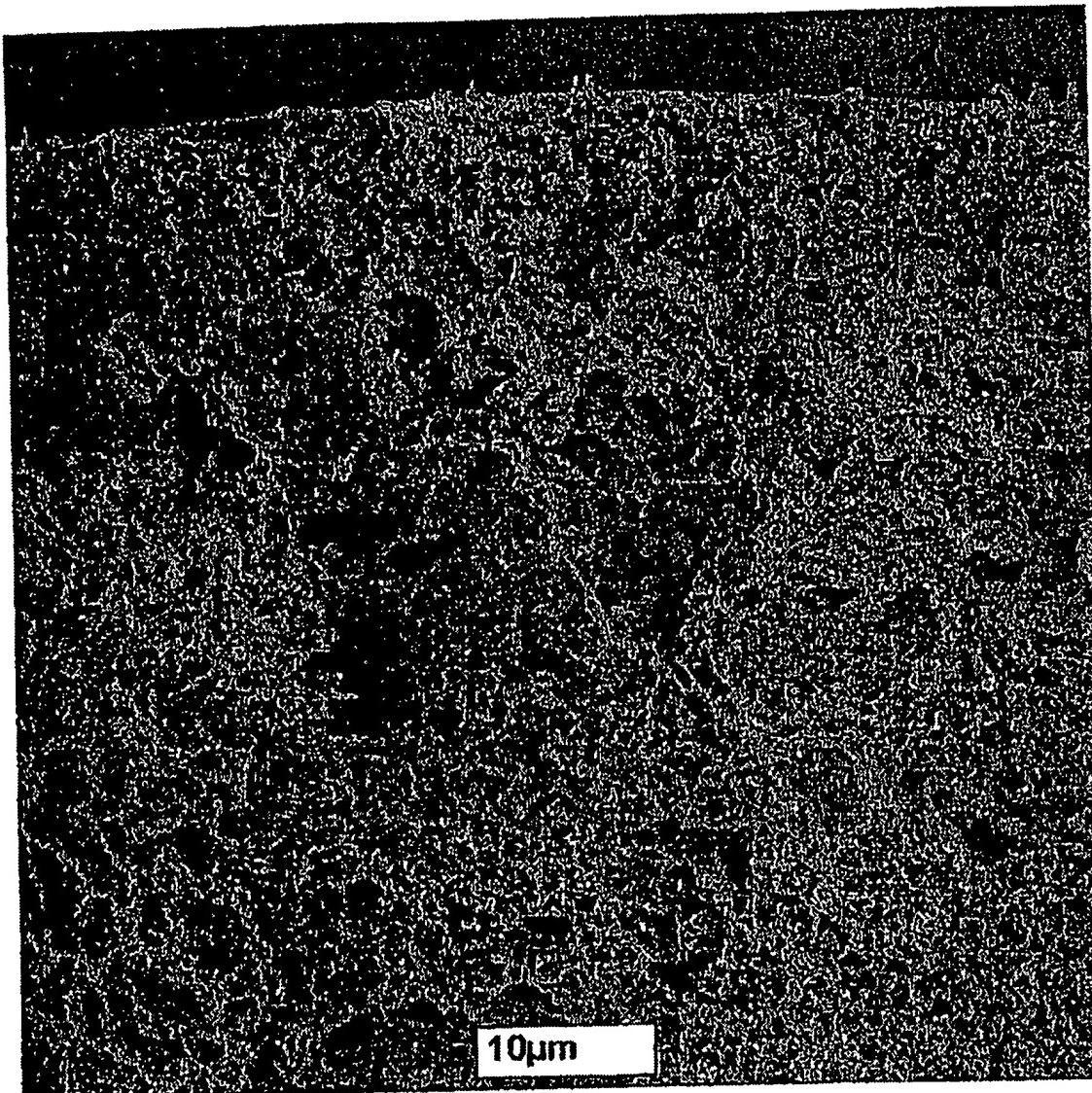


Fig.11